

COURSE REPORT

Tropical Forest Restoration in Human-Modified Landscapes of Latin America

July 13 to August 23, 2015

An online course organized by:

The Environmental Leadership and Training Initiative (ELTI)

Background: In Latin America and around the world, tropical forests are rapidly disappearing and, along with them, a variety of environmental services that maintain the diversity of life on this planet are being lost. As the damaging effects of deforestation are being observed on global and local scales, there has also been increasing interest in the conservation and restoration of tropical forests. However, many restoration projects fail over time because the species and methods employed do not match the biophysical and social conditions of the restoration site. Understanding the ecological processes that relate to forest functioning and the sociopolitical dynamics that affect decision-making can guide the development of strategies for effective forest restoration and sustainable land management.



Natural regeneration two years post-abandonment after agricultural use in the Atlantic Forest Biome outside of the city of Itu, São Paulo State, Brazil. Photo courtesy of course participant, Guilherme Sperandio Madalosso.

ELTI is an initiative of:

Yale SCHOOL OF FORESTRY &
ENVIRONMENTAL STUDIES

In collaboration with:



Smithsonian Tropical Research Institute



Dra. Florencia Montagnini

Escuela de Silvicultura y Estudios Ambientales, Universidad de Yale

A mediano y largo plazo se espera reemplazar la mayor parte de las plantaciones de caucho por bosque secundario, integrado dentro de la reserva que contiene porciones de bosque primario poco alterado, con un total de más de 10,000 ha.



Recorded videolecture delivered by guest expert Dr. Florencia Montagnini, entitled "Who does restoration?"

This online course was designed to provide an introduction to the concepts and techniques needed to plan and implement strategies for the restoration of forests and ecosystem services in multiple-use landscapes. The course was offered to practitioners and professionals working for government agencies, NGOs, and the private sector looking to advance their knowledge about tropical forest ecology and restoration. The course provided participants with a series of presentations, discussions, and activities that guide the development of a restoration management plan. Additionally, this course provided the opportunity for participants to meet and share experiences, concepts, and tools with each other, the ELTI facilitators, and guest experts.

Format: This six-week course was offered in Spanish and Portuguese and was divided into thematic modules, each one lasting a week. The thematic modules were:

- Module 1.** Ecology and natural regeneration of tropical forests
- Module 2.** Sociopolitical factors that affect restoration potential
- Module 3.** Strategies to catalyze restoration in the tropics
- Module 4.** Integration of restoration and agricultural production systems
- Module 5.** Monitoring and follow-up of restoration projects
- Module 6.** Development of a preliminary restoration management plan

The participants were allowed to complete their assignments according to their own schedules within that week, with assignments due on Sunday night at the end of each week.



Participants: From a pool of over 650 applicants, ELTI selected 50 participants for their achievement and potential as environmental decision-makers involved in natural resource management or restoration in Brazil and other countries of Latin America. They came from nine countries, including 9 different states of Brazil and 7 departments of Colombia. They work for local and national governments, non-governmental organizations, private companies, academia, and public-private partnerships.

Adecuación ambiental de propiedades rurales en el contexto del paisaje

Live videoconference with guest expert, Dr. Ricardo Ribeiro Rodrigues.

The interface includes a video feed of Ricardo R. Rodrigues, a list of assistants (Asistentes: 12), artificial intelligence (IA) tools, presenters (Presentadores: 12), participants (Participantes: 14), and a chat window with messages from Ricardo R. Rodrigues, Angélica Cogollo, Ricardo Cavalli Araújo, Juan Emilio, and Alejandro Rubio.

Logos for The Nature Conservancy, FUNDO VALE, and Dow AgroSciences PASTAGEM are visible at the bottom of the slide.

Instructors and Coordinators:

Gabriela Doria, M.Phil, M.S., a Colombian scientist and alum of the Yale School of Forestry & Environmental Studies (F&ES), facilitated the delivery and management of the course with supervision from **Gillian Bloomfield**, ELTI's Online Training Program Coordinator with an M.F.S. from Yale F&ES.

Guest expert **Daniel Piotto**, Ph.D., Professor and Dean, Federal University of Southern Bahia, provided detailed feedback on the participants' preliminary management plans and participated in a live videoconference.

Videoconferences were also delivered by:

- **Florencia Montagnini**, Ph.D., Yale University, School of Forestry & Environmental Studies, United States.
- **Ricardo Ribeiro Rodrigues**, Ph.D., Laboratory for Forest Ecology and Restoration, "Luiz de Queiróz" School of Agriculture, University of São Paulo, Brazil.

Additional content support by:

- **Mark Ashton**, Ph.D., Yale University, School of Forestry & Environmental Studies, United States.
- **Alicia Calle**, MEd, Program in Environmental Studies, University of California Santa Cruz, United States.
- **Zoraida Calle**, MSc, Center for Research in Sustainable Agricultural Production Systems (CIPAV), Colombia.
- **Karen Holl**, Ph.D., Program in Environmental Studies, University of California Santa Cruz, United States.
- **Sergius Gandolfi**, Ph.D., "Luiz de Queiróz" School of Agriculture, University of São Paulo, Brazil.
- **Eva Garen**, Ph.D., Environmental Leadership and Training Initiative at Yale University, United States.
- **William Laurance**, Ph.D., School of Marine and Tropical Biology, James Cook University, Australia
- **Severino Rodrigo Ribeiro Pinto**, Ph.D., Center for Environmental Research of the Northeast (CEPAN), Brasil.
- Among other collaborators.



Course participants Juan Emilio Bragado and Gastón Daniel López Chapedi during their site visit conducted for the course. Their course project proposed a restoration plan for degraded agricultural land in the Guabiroba river watershed in the northern part of the Misiones province, Argentina. Photo courtesy of Juan Emilio Bragado.



Educational Tools:

- Interactive presentations that provided a synthesis of the core concepts of each week;
- Pre-recorded guest lectures that simultaneously depicted the video and audio of the guest speaker, along with the PowerPoint slides;
- Optional and required readings to complement the presentations;
- Case studies providing restoration examples from Colombia, Costa Rica, Mexico, and Panama;
- Optional discussion sections conducted live with guest experts;
- Weekly short answer assignments, which evaluated the participant's understanding of the content; and
- Discussion forums for individual and group work towards the creation of a final project: a preliminary management plan for restoration on a site of professional interest.

In addition to the discussion forum, participants also had to complete the following assignments for the final project: one site visit, feedback from the guest expert, peer-to-peer exchange of drafts, and literature searches using ELTI's Tropical Native Species Reforestation Information Clearinghouse (reforestation.elti.org). At the end of the course, each participant who completed all of the course requirements received a certificate of participation.

Course Objectives:

- Present the basic principles of forest ecology, natural and anthropogenic disturbances to tropical forests, and how those disturbances affect the potential for regeneration;
- Provide the knowledge to evaluate and compare an array of tropical forest restoration methodologies and how the biophysical and socioeconomic conditions of a site influence the decision-making about which strategies to utilize;
- Allow participants to analyze the ecological conditions, disturbance history, sociopolitical factors, and monitoring plans for the adaptive management of a specific restoration site; and
- Provide the opportunity for participants from different Latin American countries to meet and share experiences, concepts, and tools with each other, the ELTI facilitators, and guest experts.

Outcomes and Follow-up: The majority of participants were actively engaged throughout the course. Thirty-six of the participants (72%) successfully completed their preliminary management plan and benefited from the feedback they received from the instructors and their peers. In the months following the course, ELTI will follow-up with the participants to see how the course and the term paper have influenced their professional development and management of their individual restoration sites.

For more information: please contact ELTI Online Training Program Coordinator, Gillian.Bloomfield@yale.edu

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